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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,182	08/18/2006	Heikki Raisanen	HEIN 22.733 (100720-00061)	4071
26304 7590 07/07/2008 KATTEN MUCHIN ROSENMAN LLP 575 MADISON AVENUE NEW YORK, NY 10022-2585			EXAMINER UHLIR, CHRISTOPHER J	
			ART UNIT 2837	PAPER NUMBER
			MAIL DATE 07/07/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,182	Applicant(s) RAISANEN, HEIKKI	
	Examiner CHRISTOPHER UHLIR	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>03/28/2008</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Receipt is acknowledged of applicant's amendment filed March 25, 2008. Claim 6 has been canceled without prejudice. Claims 1-5 and 7-20 are pending and an action on the merits is as follows.

Objections to the drawings have been withdrawn. Rejection of claim 5 under 35 U.S.C. 112 first paragraph has been withdrawn, and rejection of claim 8 under 35 U.S.C. 112 second paragraph has been withdrawn.

Applicant's arguments with respect to claims have been considered and are addressed below.

Claim Objections

1. Claims 4, 5, and 17 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claims, or amend the claims to place the claims in proper dependent form. These claims recite only specific function of previous limitations and lacks structure. Language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation. See MPEP § 2106 C.
2. Claim 15 is objected to because of the following informalities: This claim states in line 3 the limitation "wherein each symbol of the plurality of symbols is in communication". This limitation lacks proper antecedent basis. For examining

purposes, this limitation is interpreted as stating "wherein a plurality of symbols is in communication". Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 20 is rejected under 35 U.S.C. 103(a) as being obvious over Hudak (US 5,731,535). Hudak discloses a control unit for controlling at least one parameter of a musical instrument having a thin and elastic transducer material or pad of electrically conductive material (column 2 lines 2-3). Hudak discloses a surface element or marking 38 having input areas or discrete areas, as can be seen from FIG. 6, in which electrodes would inherently exist. Hudak further discloses the use of a signal processing unit or circuit board that changes the at least one parameter of the musical instrument (column 2 lines 12-15). This reference further discloses said surface element 38 to be responsive to a user's touch for adjusting said at least one parameter (column 1 lines 15-20), where touching said control unit generates a capacitance change in order to adjust the signal processing unit (column 2 lines 4-8).

Although not explicitly discloses, the electromechanical signal control unit would require the use of a microprocessor to properly adjust the signal processing unit. This

reference fails to explicitly disclose the thin and elastic layered structure to have a thickness of approximately 2 mm.

However it would have been an obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to provide the thin and elastic layered structure to have a thickness of approximately 2 mm, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In *re Rose*, 105 USPQ 237 (CCPA 1955). Doing so would provide a control unit that would not protrude from the surface of the musical instrument, allowing said musical instrument to be easily stored.

5. Claims 1-3, 7, 10, 14-16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hudak (US 5,731,535) in view of Ojala et al. (US 5,917,437).

Regarding claim 1, Hudak discloses an electromechanical control unit for a musical instrument having a touch pad area for controlling a signal processing unit (column 2 lines 16-19). The control unit contains surface elements or markings 38 having symbols, which change the values of said signal processing unit such as volume (column 3 lines 40-43) or vibrato, through touching the discrete sensitive areas (column 2 lines 60-65).

Said control unit is further disclosed to comprise layered structure, in which electrodes would inherently exist, and having a thin and elastic active transducer material or pad of electrically conductive material, where touching said control unit generates a capacitance change in order to adjust the signal processing unit (column 2

lines 4-8). Although not explicitly discloses, the electromechanical control unit would require the use of a microprocessor to properly adjust the signal processing unit. This reference fails to disclose said active transducer material to comprise a charged or polarized cellular electret film or piezoelectric material.

However Ojala et al. teaches a control unit which uses an electret bubble film (column 1 lines 25-27). This reference further teaches said film to be polarized during manufacturing (column 1 lines 8-12).

Given the teachings of Ojala et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electromechanical control unit disclosed by Hudak with an active transducer material being a polarized electret bubble film. Doing so would provide a good electromechanical converting means that is naturally lightweight and flexible, as taught by Ojala et al. (column 1 lines 43-46).

In reference to claim 2, Hudak modified by Ojala et al. discloses an electromechanical control unit as stated above where Hudak further discloses a sensor matrix element having touch sensitive areas or copper pads 68, coupled to resistors and capacitors (column 5 lines 13-17) as can be seen from Fig. 7, and further coupled to preamplifiers as shown in Fig. 8 (column 2 lines 47-49).

In reference to claims 3 and 16, Hudak modified by Ojala et al. discloses an electromechanical control unit as stated above where Hudak further discloses the signal processing unit to be controlled through different preamplifiers in order to produce parameters with different degrees of intensity (column 3 lines 4-8).

In reference to claim 7, Hudak modified by Ojala et al. discloses an electromechanical control unit as stated above where Hudak further discloses having an electronic switching circuit or latching analog circuit 60 connected to an equalization circuit 64, applied in the signal processing unit, as can be seen from Fig. 4.

In reference to claim 10, Hudak modified by Ojala et al. discloses a thin and elastic electromechanical control unit as stated above.

In reference to claim 14, Hudak discloses an electromechanical signal control unit for controlling at least one parameter of a musical instrument having surface elements or markings 38, shown in FIG. 6 to have input areas or discrete areas, where touching said input areas adjusts said at least one parameter (column 1 lines 15-20). Said control unit is further disclosed to comprise layered structure, in which electrodes would inherently exist, and having a thin and elastic transducer material or pad of electrically conductive material, where touching said control unit generates a capacitance change in order to adjust the signal processing unit (column 2 lines 4-8). Hudak further discloses the use of a signal processing unit or circuit board that changes the at least one parameter of the musical instrument (column 2 lines 12-15).

Although not explicitly discloses, the electromechanical signal control unit would require the use of a microprocessor to properly adjust the signal processing unit. This reference fails to disclose said active transducer material to comprise a charged or polarized cellular electret film or piezoelectric material.

However Ojala et al. teaches a control unit which uses an electret bubble film (column 1 lines 25-27). This reference further teaches said film to be polarized during manufacturing (column 1 lines 8-12).

Given the teachings of Ojala et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electromechanical control unit disclosed by Hudak with an active transducer material being a polarized electret bubble film. Doing so would provide a good electromechanical converting means that is naturally lightweight and flexible, as taught by Ojala et al. (column 1 lines 43-46).

In reference to claim 15, Hudak modified by Ojala et al. discloses a control unit as stated above where Hudak further discloses said input areas to include a sensor matrix element having a plurality of symbols, and touch sensitive areas or copper pads 68, coupled to resistors and capacitors (column 5 lines 13-17) as can be seen from Fig. 7, and further coupled to preamplifiers as shown in Fig. 8 (column 2 lines 47-49).

In reference to claim 19, Hudak modified by Ojala et al. discloses a control unit having an electret bubble film as stated above.

6. Claims 4, 8, 9, 11, 12, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hudak (US 5,731,535) modified by Ojala et al. (US 5,917,437) as applied to claims above, further in view of Ludwig (US 2002/0005108 A1).

In reference to claims 4 and 17, Hudak modified by Ojala et al. discloses an electromechanical control unit as stated above but fails to explicitly disclose that

operation of the pressing area can be affected based on a user's pressing force, through electrodes responsive to the pressing force.

However Ludwig teaches a musical instrument system having a control unit in which impact or pressure sensors are used (page 1 ¶ [0019]). Therefore electrodes within the pressure sensors would be responsive to the impact force of a user.

Since these references pertain to control units on a musical instrument system, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electromechanical control unit disclosed by Hudak as modified by Ojala et al. with pressure sensors able to affect the operation of a pressed area through electrodes responsive to the pressing force as taught by Ludwig. Doing so would provide an advanced expressive control system for a musical instrument system which can use effects and sounds of other instruments, as taught by Ludwig (page 11 ¶ [0247]).

In reference to claim 8, Hudak modified by Ojala et al. discloses an electromechanical control unit as stated above but fails to explicitly disclose the use of a processor to adjust the gain of the preamplifiers.

However Ludwig teaches the use of processors to output parameter streams such as gain of a given signal (page 12 ¶ [0257]) in a musical instrument system having a control unit.

Since these references pertain to control units on a musical instrument system, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electromechanical control unit disclosed by Hudak as modified by

Ojala et al. with a processor for adjusting the gain of the preamplifiers, as taught by Ludwig. Doing so would provide an effective and reliable method of changing signal parameters of the musical instrument system.

In reference to claim 9, Hudak modified by Ojala et al. discloses an electromechanical control unit as stated above but fails to disclose a temperature measurement means.

However Ludwig teaches a musical instrument system having a control unit in which sensors are used to detect and measure temperature (page 10 ¶ [0218]).

Since these references pertain to control units on a musical instrument system, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electromechanical control unit disclosed by Hudak as modified by Ojala et al. with a temperature measurement means as taught by Ludwig. Doing so would provide a reliable control unit for a musical instrument system which can prevent overheating of the system by early detection.

In reference to claims 11 and 12, Hudak modified by Ojala et al. discloses an electromechanical control unit as stated above but fails to disclose a thin and elastic display arranged on the outer surface.

However Ludwig teaches a musical instrument system having a control unit where a two-dimensional-sensing see-through touch-screen can be used (page 10 ¶ [0222]). These touch screens display operation functions and menus, and are known to be thin and elastic-like for proper sensing. Further, said touch screens would be positioned on an outer surface in order to efficiently used.

Since these references pertain to control units on a musical instrument system, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electromechanical control unit disclosed by Hudak as modified by Ojala et al. with a thin and elastic display arranged on the outer surface as taught by Ludwig. Doing so would provide an easily usable control unit on a musical instrument system which can “very easily capture very expressive finger nuances” as taught by Ludwig (page 10 ¶ [0222]).

7. Claims 5 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hudak (US 5,731,535) modified by Ojala et al. (US 5,917,437) as applied to claims above, further in view of Bard et al. (US 5,793,032).

In reference to claims 5 and 18, Hudak modified by Ojala et al. discloses an electromechanical control unit as stated above, further shown in Hudak to have a battery (column 4 lines 2-4). These references fail to disclose that a pressing contact with the electrodes provides a method of charging the batteries.

However Bard et al. teaches a method of charging a battery when contact is made with an electrode (column 9 lines 29-33).

Given the teachings of Bard et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electromechanical control unit disclosed by Hudak as modified by Ojala et al. with a method of charging batteries when pressing contact is made with the electrodes. Doing so would provide a method which would prevent frequent replacement of batteries, therefore requiring less maintenance.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hudak (US 5,731,535) modified by Ojala et al. (US 5,917,437) and Ludwig (US 2002/0005108 A1) as applied to claims above, further in view of Katsuki et al. (US 2003/0011577 A1). Hudak modified by Ojala et al. and Ludwig discloses an electromechanical control unit for a musical instrument system using a touch screen as stated above but fails to disclose an electromechanical response based on piezoelectric material arranged in a film.

However Katsuki et al. teaches a touch screen using piezoelectric thin film (page 1 ¶ [0002]).

Given the teachings of Katsuki et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electromechanical control unit disclosed by Hudak as modified by Ojala et al. and Ludwig with a touch screen having a piezoelectric film. Doing so would provide a touch panel control unit on a musical instrument system that can “detect a touched position with sufficient resolution and accuracy without requiring high accuracy in the process for forming the piezoelectric film” as stated in Katsuki et al. (page 1 ¶ [0014]).

Response to Arguments

Applicant's arguments filed March 25, 2008 have been fully considered but they are not persuasive.

Applicant states on page 10 of the response that claims 4 and 5 have been amended to “positively recite further limitations”. Although these claims were amended,

no structural limitations were added to the claim language. These claims are still directed to functional language, and therefore do not overcome the previous objection.

In reference to the Ojala et al. reference, it should be noted that Hudak was relied upon by examiner to disclose an electromechanical control unit for a musical instrument having electromechanical converting means or discrete sensitive surface sensors. The Ojala et al. reference was relied upon to teach specific limitations that were not shown in the Hudak reference. Ojala et al. teaches the use of an electret bubble film as an electromechanical converting means (column 1 lines 25-27). The electret bubble film or EMF creates current pulses that are detected by electrodes through changes in thickness of the film (column 1 lines 34-36). Therefore substituting the discrete sensitive surface sensors acting as electromechanical converting means disclosed in Hudak with the electret bubble film electromechanical converting means taught by Ojala et al. would properly read on applicant's claimed invention. Combining the EMF taught by Ojala et al. with the control unit disclosed by Hudak would not require a frame made of hard material, as suggested by applicant. Since the EMF reacts to changes in the thickness of its film, a hard frame would not be required for proper function of the EMF. The EMF would properly act as an electromechanical converting means without the addition of a hard frame.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER UHLIR whose telephone number is (571)270-3091. The examiner can normally be reached on Monday-Thursday 8:00am-6:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on 571-272-1988.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CHRISTOPHER UHLIR/

Examiner, Art Unit 2837

July 1, 2008

/Lincoln Donovan/

Supervisory Patent Examiner, Art Unit 2837